

tube 36 is supported on the shaft member 27 or support member 29 for relative rotation around the vertical axis 24 in this swivel mechanism 22*b*. The tube 36, the sleeve 33, the movable cam member 53 and the bracket 32 are thus forced to rotate all together. The stationary cam member 52 may be coupled to the support member 29 for immobility relative to the support member 29 around the vertical axis 24. The first hollow space 34 is defined in the support shaft 28 in the same manner as described above. The second hollow space 37 is defined in the tube 36. Like reference numerals are attached to structure or components equivalent to those of the aforementioned first embodiment. The cam member 38 may be mounted only on one of the support shafts 28 in the swivel mechanism 22*b* in the same manner as the aforementioned second embodiment.

FIG. 18 schematically illustrates a swivel mechanism 22*c* according to a fourth embodiment of the present invention. The swivel mechanism 22*c* allows provision of the first rotation restriction mechanism 51 outside the sleeve 33. The first hollow space 34 is defined in the support shaft 28 in the same manner as described above. The second hollow space 37 is defined in the tube 36. Like reference numerals are attached to structure or components equivalent to those of the aforementioned first embodiment. The cam member 38 may be mounted only on one of the support shafts 28 in the swivel mechanism 22*c* in the same manner as the aforementioned second embodiment. The movable cam member 53, the sleeve 33 and the bracket 32 may be forced to rotate all together around the vertical axis 24. Otherwise, the tube 36 may also be forced to rotate around the vertical axis 24 along with the movable cam member 53, the sleeve 33 and the bracket 32.

What is claimed is:

1. A bi-axial swivel assembly comprising:

- a pair of coaxial bearings located at positions distanced from each other;
- a pair of support shafts respectively supported on the coaxial bearings for relative rotation;
- a first hollow space extending at least within one of the support shafts in an axial direction of the support shafts, the first hollow space penetrating through the bearing corresponding to the one of the support shafts;
- a support member interposed between the support shafts, the support member coupled with the support shafts based on integral formation;
- a tube supported on the support member, the tube extending along a rotation axis perpendicular to an imaginary plane including a longitudinal axis of the support shafts;
- a second hollow space extending within the tube in an axial direction of the tube, the second hollow space penetrating through at least the support member, the second hollow space being connected to the first hollow space;
- a shaft cover supported on the tube for relative rotation around the rotation axis;
- a bracket coupled to the shaft cover;
- perpendicular surfaces defined on the bearings along imaginary reference planes perpendicular to the longitudinal axis of the support shafts, respectively;
- a restriction cam coupled to the shaft cover, the restriction cam extending in a centrifugal direction of the rotation axis, the restriction cam lying inside the imaginary reference planes when the bracket takes a first attitude, the restriction cam protruding outside at least one of the imaginary reference planes when the bracket takes a second attitude established through rotation by 90 degrees around the rotation axis from the first attitude; and

recesses formed on the perpendicular surfaces, respectively, the recesses receiving the restriction cam protruding outside the imaginary reference planes.

2. The bi-axial swivel assembly according to claim 1, wherein the support member supports the tube at a position off the longitudinal axis of the support shafts.

3. The bi-axial swivel assembly of claim 1, wherein the recesses define an enlarged section in a groove extending around the longitudinal axis of the support shafts, the groove being defined by the perpendicular surfaces.

4. A cellular phone terminal comprising:

- first and second enclosures;
- a pair of coaxial bearings attached to the first enclosure at positions distanced from each other;
- a pair of support shafts respectively supported on the coaxial bearings for relative rotation;
- a first hollow space extending at least within one of the support shafts in an axial direction of the support shafts, the first hollow space penetrating through the bearing corresponding to the one of the support shafts;
- a support member interposed between the support shafts, the support member coupled with the support shafts based on integral formation;
- a tube supported on the support member, the tube extending along a rotation axis perpendicular to an imaginary plane including a longitudinal axis of the support shafts;
- a second hollow space extending within the tube in an axial direction of the tube, the second hollow space penetrating through at least the support member, the second hollow space being connected to the first hollow space;
- a shaft cover supported on the tube for relative rotation around the rotation axis;
- a bracket coupled to the shaft cover;
- perpendicular surfaces defined on the bearings along imaginary reference planes perpendicular to the longitudinal axis of the support shafts, respectively;
- a restriction cam coupled to the shaft cover, the restriction cam extending in a centrifugal direction of the rotation axis, the restriction cam lying inside the imaginary reference planes when the bracket takes a first attitude, the restriction cam protruding outside the imaginary reference planes when the bracket takes a second attitude established through rotation by 90 degrees around the rotation axis from the first attitude; and
- recesses formed on the perpendicular surfaces, respectively, the recesses receiving the restriction cam protruding outside the imaginary reference planes.

5. The bi-axial swivel assembly of claim 4, wherein the recesses define an enlarged section in a groove extending around the longitudinal axis of the support shafts, the groove being defined by the perpendicular surfaces.

6. A bi-axial swivel assembly comprising:

- a pair of coaxial bearings located at positions distanced from each other;
- a pair of support shafts respectively supported on the coaxial bearings for relative rotation;
- a first hollow space extending at least within one of the support shafts in an axial direction of the support shaft, the first hollow space penetrating through the bearing corresponding to the one of the support shafts;
- a support member interposed between the support shafts, the support member coupled with the support shafts based on integral formation;
- a tube supported on the support member, the tube extending along a rotation axis perpendicular to an imaginary plane including a longitudinal axis of the support shaft;